Remarks

Claims 1-18, 20, 22-28 and 30-31 are pending in the subject application.

I. Response to Rejection of Claims under 35 USC §102.

Claim 1

Claim 1 sets forth a wetness indicator having a liquid permeable enclosure having an interior volume and a liquid absorbent body therein. The liquid absorbent body has an unrestrained volume upon absorption of a preselected amount of liquid that is substantially greater than the interior volume of the enclosure such that the absorbent body applies an expansion pressure to the enclosure upon absorption of the liquid. The structural elements of the claimed invention (e.g., the absorbent body unrestrained volume upon absorption of liquid being substantially greater than the volume of the liquid permeable enclosure) cause the wetness indicator to stiffen as liquid is absorbed. Since the enclosure has an interior volume that is substantially less than the unrestrained volume of the saturated absorbent body, the absorbent body pushes outward (e.g., applies an expansion pressure) to the enclosure while in return the enclosure limits expansion of the absorbent body to its unrestrained volume. As a result the stiffness of the wetness indicator increases upon absorption by the absorbent body of the preselected amount of liquid.

Specifically, claim 1 as amended recites a wetness indicator comprising:

a liquid permeable enclosure having an interior volume and a liquid absorbent body therein,

said liquid absorbent body absorbing liquid in the presence thereof and having an unrestrained volume upon absorption of a preselected amount of liquid,

said unrestrained volume of the absorbent body being substantially greater than the interior volume of the enclosure such that the absorbent body applies an expansion pressure to the enclosure upon absorption of said preselected amount of liquid,

said enclosure limiting expansion of the absorbent body so that the wetness indicator stiffens as liquid is absorbed,

said wetness indicator having a first stiffness when dry and a second stiffness greater than said first stiffness upon absorption of said preselected amount of liquid.

Claim 1 is submitted to be unanticipated by and patentable over the references of record, and in particular U.S. Patent No. 6,221,460 (Weber et al.) and U.S. Patent No. 5,797,892 (Glaug et al.), in that whether considered alone or in combination the references fail to show or suggest a wetness indicator comprised of an enclosure and a liquid absorbent body having an unrestrained volume upon absorbing a preselected amount of liquid whereby the unrestrained volume of the liquid absorbent body is substantially greater than the volume of the

enclosure so that upon expansion of the absorbent body within the enclosure the stiffness of the wetness indicator increases.

Weber et al. disclose a liner (12) for use with personal care absorbent articles, such as diapers, designed to provide a path for increased air circulation and also to reduce the total surface area of the liner in contact with the infant's skin. Thus, the liner disclosed by Weber et al. has a totally different purpose than a wetness indicator leading to substantially different structural properties than what is recited in amended claim 1. The liner (12) forms the air-circulation paths by providing a plurality of peaks (48) separated by channels (51) at spaced-apart intervals across the surface of the liner. With particular reference to Figs. 1-3 and 6a-e of Weber et al., the peaks (48) can be formed by creating pairs of inwardly facing folds (44) and (46) in a facing layer (40). In another embodiment (Figs. 8 and 9), the peaks can be formed by separate strips that are attached to the liner of the article.

Disposed within the peaks (48) is a liquid absorbing material (50) capable of absorbing body exudates or liquids in general. The absorbing material (50) may include components such as wood pulp, fluff, tissue, superabsorbent particles and fibers, odor reducing agents and antimicrobial agents.

Weber et al. fail entirely to disclose or otherwise even suggest that the peaks (48) stiffen upon absorption by the absorbing material (50) of a preselected amount of liquid. The Examiner maintains that column 7, lines 16-23 of Weber et al. discloses such an increase in stiffness. As noted in the

previous Amendment B, the cited passage actually states only that the absorbent material (50) may include superabsorbent material that can absorb at least four times its weight. In the present rejection, the Examiner fails to address the fact that there is no disclosure whatsoever, either in the cited passage or elsewhere, that the absorption by the superabsorbent material results in enough expansion to stiffen the peaks (48). Moreover, Weber et al. fail to disclose or suggest that the absorbent material (50) has an unrestrained volume upon absorbing a preselected amount of liquid whereby the unrestrained volume is substantially greater than the interior volume of the peak as recited in claim 1. In fact, Weber et al. fail altogether to disclose the relative sizing between the unrestrained saturated volume of the absorbent material and the interior volume of the peak formed by the facing layer.

The fact that the absorbent material (50) of Weber et al. may include superabsorbent material is insufficient, by itself, or even combined with the fact that the facing layer has a limited volume, to render it necessary that the absorbent material will apply an expansion pressure to the facing layer to stiffen the peak. For example, the absorbent material may expand within the interior volume of the peak without expanding to the point at which an expansion pressure is applied by the absorbent material to the facing layer that forms the peak. See, e.g., Figs. 6a-e in which the absorbent material is substantially smaller than the interior volume of the peak. Thus, in such an embodiment, even if the absorbent material expands some amount it may not expand to a volume larger than

the interior volume of the peak.

Absent a disclosure by Weber et al. of the relative expandability of the absorbent material to the interior volume of the peak, the Office has no basis for concluding that the absorbent material (50) within each peak necessarily has an unrestrained volume that is substantially greater than the volume of the peak and thus capable of sufficiently expanding to apply an expanding pressure to the facing layer to thereby stiffen each peak.

At page 12 of the present Office action, the Examiner states that the liquid permeable enclosure limits the expansion of the absorbent body in Weber et al. because without the enclosure, the superabsorbent material would swell to at least four times its weight when wetted. Applicants admit that Weber et al. teach that the absorbent material 50 may comprise superabsorbent materials capable of absorbing at least four times their weight in water. However, Weber et al. is completely void of any teaching of a relationship between the amount of water by weight that is absorbed in the absorbent material and an unrestrained volume of the absorbent body that may result from expansion of the absorbent material after the absorption of water. Further, there is no teaching in Weber et al. that the unrestrained volume of the absorbent body after absorbing at least four times its weight in water will be greater, let alone substantially greater, than the interior volume of the peak. It is entirely possible that Weber et al. contemplated that the peaks would have a sufficient volume to accommodate the expected increase in volume of the absorbent

material resulting from the absorption of water without exerting an expansion pressure on the liquid permeable enclosure. Weber et al. and the other references of record are completely void of any such teachings that show or suggest the claimed relationship between the interior volume of the enclosure and the unrestrained volume of the absorbent body.

Glaug et al. disclose a toilet training aid in the form of a pad (80) that includes both a temperature change member (54) and a dimensional change member (82) disposed within a pocket formed by a wet sensation layer (56) (e.g., a topsheet) and a support layer (58). According to Glaug et al., the dimensional change member (82) (e.g., a compressed cellulose sponge) is capable of expanding (e.g., in height) upon wetting thereof up to about ten times the height of the dimensional change member when dry. However, Glaug et al. fail to disclose or otherwise suggest that the dimensional change member has an unrestrained volume upon absorbing liquid that is substantially greater than the volume of the pocket formed by the wetness sensation layer and the support layer.

The Office maintains the position that Glaug discloses the unrestrained saturated volume of the absorbent body (presumably intended to refer to the dimensional change member) as being greater than the volume of the enclosure (presumably referring to the pocket formed by the wetness sensation layer and the support layer). In support, the Office now cites the following passage from column 15, line 40 to column 16, line 41 of Glaug et al.

The dimensional change member 82 comprises a material or materials that rapidly undergo a change in at least one dimension when exposed to an aqueous solution. The dimensional change is suitably either an expansion to at least about 2 times a dry dimension or a contraction to less than about one-half (1/2) of the dry dimension. In particular embodiments, the dimensional change is either an expansion to at least about 5 times the dry dimension or a contraction to less than about one-fifth (1/5) of the dry dimension. For example, the dimensional change member 82 has a wet height dimension that is at least about 5 times greater than its dry height dimension, and more desirably at least about 10 times greater for improved performance. The height dimension of the dimensional change member 82 is perpendicular to the plane formed by the longitudinal and transverse axes of the pad 80 so that the dimensional change is noticeable to the wearer. The other dimensions, the width and length, of the dimensional change member 82 may remain the same, expand or contract when exposed to an aqueous solution.

In one particular embodiment, the dimensional change member 82 comprises a compressed cellulose sponge having a dry height of about 0.9 mm and a wet height of about 9.5 mm. The height dimensions are measured with the material under a compressive load of 0.2 pounds per square inch. The noncompressed axes of the material, that is the width and length, expand only about 7 percent from dry to wet states. Additionally, the dimensional change member 82 is desirably

generally hydrophobic so that the pad 80 releases liquid to the garment, such as the training pant 24, to which it is attached.

In one aspect of the invention, the dimensional change member 82 is capable of expanding to at least about 5 times its dry height in 10 seconds, and more particularly to at least about 10 times its dry height in 3 seconds for improved performance. A suitable procedure for determining the time required for an expandable material to reach its maximum dimensional change (previously determined) is to place a sample of expandable material between two screens that are separated by spacers. The spacers are set so that the distance between the two screens is equal to the dimension of the material when it has expanded to its maximum. The expanding material is placed between the screens so that the axis with the maximum expansion is perpendicular to the planes of the two screens. Quickly immerse the screens holding the sample into a volume of distilled water. Start timing when the sample is completely submerged and stop timing when the sample has expanded enough to completely fill the void between the two screens. The time obtained in this procedure is the time to maximum expansion. The procedure can be modified to determine whether a material reaches a particular degree of expansion in a set time, by adjusting the spacing between the screens to the particular degree of interest and noting whether the material contacts both screens by the set time.

Suitable materials for use in the dimensional change member 82 include expandable foams, compressed cellulose sponges, or the like. Particularly desirable expandable foams

include those having open, large cell, reticulated structures. Examples of such expandable foams are available from O-Cell-O, General Mills, Inc., Tonawanda, N.Y., USA, and Industrial Commercial Supply Co., Akron, Ohio, USA. The material forming the dimensional change member 82 may be softened by mechanical means or other suitable techniques so as to be less noticeable until urination occurs. One such means that is effective with compressed cellulose sponge is to run the material through a set of meshed gears with the gap between the gears set so that the material is sufficiently scored to make it pliable.

The above passage details that the dimensional change member (82) may expand upon absorption of liquid to a weight height dimension at least two times greater than a dry height dimension or the dimensional change member may contract to a wet height dimension that is at least twice as small as the dry height dimension. Also, the cited passage discloses that the dimensional change member (82) may comprise numerous materials (e.g., expandable foams, cellulose sponges, etc.). Further, the above passage describes a suitable procedure for determining the time required for an expandable material to reach its maximum dimensional change. However, nowhere in the above passage, nor any other passage, does Glaug et al. reference the relative size of the unrestrained volume of the absorbent material (50) to the interior volume of a pocket formed by the wetness sensation layer and the support layer. Rather, the above passage only describes the different materials from which the dimensional change member can be made

and the weight height dimensions of the dimensional change member.

Applicants cannot find any reference in the above passage, or any other passage in Glaug et al., to any structure that may be construed as the "liquid permeable enclosure having an interior volume" recited in claim 1. Indeed, the above passage does not even describe or suggest the existence of a pocket let alone the relative size of the pocket as compared to an unrestrained volume of the dimensional change member. Rather, the above passage details one embodiment of the dimensional change member that may have a specific wet height dimension (e.g., about 9.5 mm) and a specific dry height dimension (e.g., about 0.9 mm) but does not correlate the height dimension to an unrestrained volume of the dimensional change member. Also, Glaug et al. fail to compare the wet height or volume of the dimensional change member to the available height or volume of a pocket formed by the wetness sensation layer and support layer.

Thus, Glaug et al. lack any disclosure of such a relationship. Nor is such a relationship inherent in the disclosure of Glaug et al. That is, there is no basis in fact and/or technical reasoning to reasonably support the determination that the recited relationship necessarily flows from the teachings of the applied prior art. MPEP § 2112 citing *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient for inherency. See MPEP § 2112, citing *In re Rijckaert*, 9 F.3d

1531, 1534 (Fed. Cir. 1993).

There is no drawing of the pad (80) of Glaug et al. with the dimensional change member in an expanded condition. While there is no doubt that the dimensional change member disclosed by Glaug et al. may expand (or contract) upon wetting thereof, there is clearly no disclosure made by Glaug et al. as to the relative size of the interior volume of the pocket compared to the unrestrained volume of the dimensional change member when wet. Absent such information, the Office has no basis for maintaining that the dimensional change member ***necessarily*** has an unrestrained volume that is substantially greater than the volume of the pocket. It is entirely possible that the dimensional change member of Glaug et al. expands upon absorption of fluid in a manner that does not exert an expansion pressure on the pocket formed by the wetness sensation layer and support layer because Glaug et al. is completely lacking of any teaching that would suggest otherwise.

For these reasons, claim 1 is also submitted to be unanticipated by and patentable over Glaug et al.
The other references of record similarly fail to show or suggest all of the features recited in amended claim 1. Claims 2-11 and 30 depend directly or indirectly from claim claim 1 and are submitted to be patentable over the references of record for the same reasons as claim 1.

Claim 12

Claim 12 is directed to a garment that comprises, among

other elements, a wetness indicator comprising a liquid permeable enclosure having an interior volume and a liquid absorbent body therein, the absorbent body having an unrestrained saturated volume greater than the interior volume of the liquid permeable enclosure.

Claim 12 is therefore submitted to be unanticipated by and patentable over the references of record for the same reasons as claim 1.

Claims 13-18, 20, 22-24 and 31 depend directly or indirectly from claim 12 and are submitted to be patentable over the references of record for the same reasons as claim 12.

II. Rejection of Claims under 35 USC §103.

Claim 25

Claim 25 is directed to an article for personal wear capable of alerting a wearer to the wearer's release of liquid body exudates. The article comprises a front region, a back region and a crotch region interconnecting the front and back regions and extending generally longitudinally therebetween, and a generally elongate wetness indicator positioned in the crotch region so as to come in contact with the liquid body exudates. The wetness indicator has a first stiffness when dry and a second stiffness greater than the first stiffness upon absorption of a preselected amount of the liquid body exudates. The wetness indicator is positioned transversely in the crotch region such that opposite ends of the wetness indicator provide a tactile sensation to the inner thighs of the wearer for alerting the wearer to the release of liquid body exudates.

Claim 25 is submitted to be nonobvious and patentable over the references of record, and in particular Glaug et al., in that whether considered alone or in combination the references fail to disclose or suggest an article having an elongate wetness indicator that becomes stiff when wet and extends transversely within the crotch region of the article such that the opposite ends of the wetness indicator provide a tactile sensation to the inner thigh of the wearer.

When dry, the wetness indicator bends without perceptible resistance when subjected to force from the thighs. However, when wet, the wetness indicator becomes stiff, resisting the force applied by the thighs sufficiently to be tactilely perceived. The Office action, recognizing that Glaug fails to disclose such a feature, takes the position that it would have been obvious to one skilled in the art to position the wetness indicator transversely in the crotch region because it involves a mere rearranging of parts of an invention requiring only routine skill in the art. Applicants respectfully disagree. There are no per se rules of obviousness. *In re Ochiai*, 37 U.S.P.Q.2d 1127, 1133 (Fed. Cir. 1996). Moreover, it has been held that rejections based on choice of design are improper. *In re Bezombes*, 164 U.S.P.Q. 387, 391 (CCPA 1970). The Office must show some teaching or suggestion in the prior art that would motivate one skilled in the art to make the alleged choice of design. Such motivation is clearly lacking in this case. Glaug et al. disclose the dimensional change member (and pad in general) as extending longitudinally. If such a pad were stiffened in accordance with the present invention, it

would have the undesirable tendency to urge the article containing the pad to straighten out toward the back and front of the crotch region, which can result in poor fit and leakage from the article. Further, since the pad is positioned longitudinally in the crotch region, the opposite ends of the pad would provide a tactile sensation to the front waist region and back waist region of the user's body, not the inner thighs.

The present invention solves the above problems by extending an elongate wetness indicator transversely across the crotch region (e.g., so that it does not extend to the front and back of the crotch). As a result, upon stiffening, the wetness indicator applies pressure against the wearer's inner thighs but otherwise does not negatively affect the fit and leakage retention properties of the article. Thus, applicants' wetness indicator extending transversely within the crotch region is not a mere rearrangement of parts, but is an inventive feature intended to solve potential fit and leakage problems associated with prior designs. There is no motivation found anywhere in Glaug et al. for providing this unique formation and orientation of a wetness indicator in an article for personal wear capable of alerting a wearer to the wearer's release of liquid body exudates.

For these reasons, claim 25 is submitted to be nonobvious and patentable over the references of record.

Claims 26-28 depend directly or indirectly from claim 25 and are submitted to be patentable over the references of record for the same reasons as claim 25.

Claim 28

Claim 28 depends indirectly from claim 25 and further recites that the wetness indicator has a liquid permeable enclosure and a liquid absorbent body therein with the absorbent body having an unrestrained saturation volume that is greater than the volume of the enclosure.

Claim 28 is further submitted to be patentable over the references of record for the same reasons as claim 1 discussed previously. That is, Glaug et al. fail to disclose or suggest that the dimensional change member (82) therein has an unrestrained saturation volume greater than the volume of the pocket formed by the wetness sensation layer and the support layer.

III. Comments on Examiner's response to Arguments in Amendment B

Applicants now address the statements bridging pages 13 and 14 of the Office action that respond to the prior arguments raised by applicants, the majority of which are repeated above. In particular, the Office action takes the position that applicants' arguments submitted in their Amendment B (and restated above with additional emphasis), improperly rely on a recitation of the intended use of the claimed invention rather than the structural differences between the claimed wetness indicator and the prior art. Applicants respectfully disagree.

The elements of claim 1 asserted as defining over the prior art particularly relate to the structural relationship between the interior volume of the liquid permeable enclosure

and the unrestrained volume of the absorbent body, i.e., that it is substantially greater than the interior volume of the liquid permeable enclosure. This requirement is a structural limitation, not a recitation of intended use. In other words, the recitation emphasizes the **size** and **expandability** of the unrestrained volume of the absorbent body as it relates to the **size** of the interior volume of the liquid permeable enclosure. Clearly, the relative size of two claimed elements is a structural limitation of the claim and bears no relationship to the intended use of the claimed article.

Applicants have not presented arguments which distinguish the claimed structure from identical structure in the prior art solely (or even partly) on the basis of the use or method of making the claimed structure. Applicants' arguments are directed to the claimed structure itself (i.e., the size of the interior volume of the liquid permeable enclosure and the unrestrained volume of the absorbent body). Thus, the cases cited by the Examiner, *In re Casey*, 152 U.S.P.Q. 235 (CCPA 1967) and *In re Otto*, 136 U.S.P.Q. 458, 459 (CCPA 1963), are inappplicable. In both of the cited cases, the applicant failed to assert structure within the claim to distinguish the prior art. In *Casey*, the applicant merely argued that the prior art was not used as a tape dispenser without specifying what structure in the claim distinguished the prior art. In *Otto*, the applicant argued solely that the claimed hair roller was made differently and used in a different way than the prior art. Applicants have no disagreement with these cases other than to say that they are completely inapplicable to

applicants' arguments.

Applicants have never offered arguments based on the use or process for making the claimed structure. That is, applicants have not argued that its article is used in a manner different from the prior art. Rather, applicants' arguments have focused on the relationship between the interior volume of the enclosure and the unrestrained volume of the absorbent body.

IV. Conclusion

In view of the foregoing, favorable consideration and allowance of claims 1-18, 20, 22-28 and 30-31 is respectively requested.

Respectfully submitted,

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